

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--DETERMINATION OF THE SOLUBILITY OF WATER IN HYDROCARBONS -U-  
AUTHOR--CHERNYSHEV, A.K. C  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. TEKHNCL. TOPL. MASEL 1970, 15(4), 57-8  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SOLUBILITY, WATER, HYDROCARBON, NOMOGRAM, PETROLEUM PRODUCT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0967 STEP NO--UR/0065/70/015/004/0057/0058  
CIRC ACCESSION NO--AP0124626,  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124626

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NOMOGRAM IS GIVEN FOR DETG. THE SOLY. OF WATER IN 69 PETROLEUM PRODUCTS, HYDROCARBONS, AND OTHER ORG. COMPOS. AT NEGATIVE 10 TO 80 DEGREES; THE NOMOGRAM WAS BASED ON EXPTL. DATA.

FACILITY: KEMEROV. FILIAL, GIAP, KEMEROVO, USSR.

UNCLASSIFIED

1/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--STRENGTH AND MINERALOGICAL COMPOSITION OF PELLETS FROM  
SOKOLOVO-SARBAI BENEFICIATING COMBINE IN RELATION TO FIRING CONDITIONS  
AUTHOR--(04)-CHERNYSHEV, A.M., MALYSHEVA, T.YA., MOREYEVA, G.P., ZHURAVLEV,  
F.M.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(4), 293-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PELLETIZATION, IRON ORE, SLAG, CERAMIC BINDER, TEMPERATURE  
DEPENDENCE, MECHANICAL STRENGTH, CALCIUM OXIDE, MAGNESIUM OXIDE,  
ALUMINA, SILICA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1275

STEP NO--UR/0133/70/030/004/0293/0298

CIRC ACCESSION NO--AP0136681

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136681

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF TIME AND TEMP. AT DIFFERENT STAGES OF FIRING FLUXED FE ORE PALLETS WAS INVESTIGATED MINERALOGICALLY AND BY CRUSHING STRENGTH DETN. AT HIGH TEMPS. COMPLEX SILICOFERRITES CONTG. LESS THAN OR EQUAL TO 8PERCENT (CAO PLUS MGO PLUS AL SUB2 O SUB3 PLUS SIO SUB2) HAVING A MAX. CRIT. STRENGTH TEMP. SERVE HERE AS A BOND WHICH HAS A LESSER REDUCIBILITY THAN HEMATITE AND MAGNETITE AND REMAINS SUCH UP TO THE REDN. OF FE TO METAL. A MAX. RANGE OF 650-700DEGREES OF CRIT. STRENGTH WAS RECORDED WITH A STRUCTURE OF INTERMESHED HEMATITE AND FERRITES. ADDN OF DOLOMITE TO THE CHARGE CAN BE RECOMMENDED IN THIS LIGHT.

UNCLASSIFIED

AM0052389-

CHERNYSHEV

A.S.

\$

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 1-70

UR 0482

243414 LIFTING DEVICE FOR AEROPLANES consists of truck, with loading platform 2, and is distinguished by mounting a polypast on the loading platform. The polypast lower block 3 is fixed to the platform, whereas the upper one is used to fix the aeroplane into the board. The polypast cable are connected to the hoist 9 fixed to the truck.

17.2.68 as 1218674/40-23.M.S.BALYKIN et al.(15.9.69)  
Class 62c.Int.Cl.B 64f.

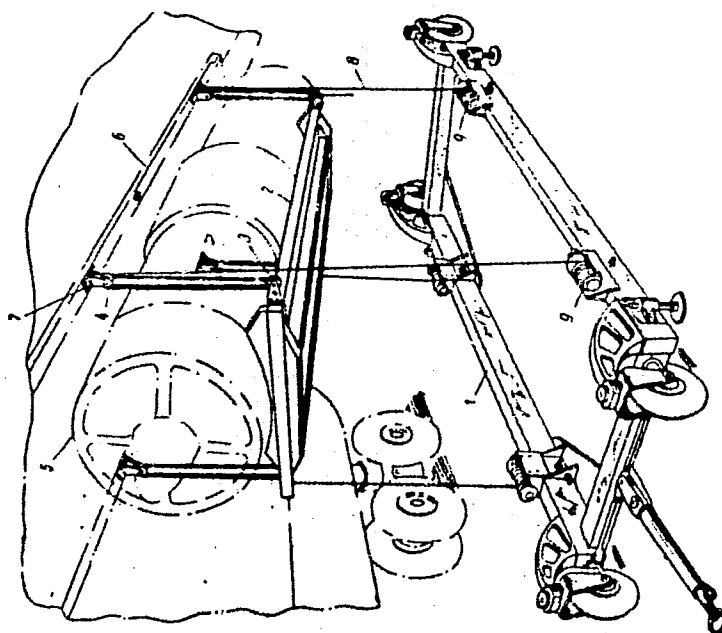
Balykin, M. S.; Golubev, Yu. V.; Nikiforov, L. A.;  
Chernyshev, A. S.; Shekhterman, Ye. I.

1/2

19820989

4

AA0052389



2/2

19820990

mp

USSR

UDC 666.113.431.47.32-31.28

BLINOV, V. A., UDOVENKO, N. G., NIKULIN, V. KH., PRUSAKOVA, L. M.,  
SOKOLINSKIY, A. G., ORLOV, V. N., VYSOTSKAYA, Z. I., and CHERNYSHEV, A. V.

"Glass for Ultrasonic Delay Lines"

USSR Author's Certificate No 366156, Filed 26 Jun 70, Published 16 Jan 73  
(from Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 7,  
Mar (a) 73, Claim No 1453164/29-33)

Translation: A glass for ultrasonic delay lines, including  $\text{SiO}_2$ ,  $\text{ZnO}$ ,  $\text{BaO}$ ,  
 $\text{K}_2\text{O}$ , is distinguished by the fact that, in order to obtain stable acoustic  
properties it contains the above components in the following amounts, weight  
%:  $\text{SiO}_2$  49-65;  $\text{ZnO}$  5-25,  $\text{BaO}$  10.5-30;  $\text{K}_2\text{O}$  6-25, and furthermore  $\text{Sb}_2\text{O}_3$  0.05-3.

1/1

- 47 -

USSR

UDC: 669.243.51:661.937

MURASHOV, V. D., CHERMAK, L. L., TOLSTOGUZOV, A. D., CHERNYSHEV, D. P., and REZNIK, I. D.

"Experience on Adopting Oxygen in Shaft Melting of Nickel Sinter at the Yuzhuralnikel' Combine"

Moscow, Tsvetnyye metally, No 3, Mar 72, pp 1-3

Abstract: The use of 24.3% oxygen blast in shaft melting during the first six months of 1971 increased the absolute fusion of the sinter by 13.4% and the per-unit fusion by 22.2% against the 1968 level-prior to oxygen introduction. The per-unit coke consumption dropped by 17%, amounting to 21.9% of the sinter weight. Nickel content in the slags increased from 0.16 to 0.18%, which is ascribed to greater iron contents in the processed ores. The reduction in operating costs through the use of the two new oxygen blast lines (with 23.2% O<sub>2</sub>) plus the profit from additional production outputs in the 1969-70 period show yearly savings of one million rubles. (2 tables, 7 bibliographic references).

1/1



USSR

UDC 547.622+547.736+547.836

CHERNYSHEV, E. A., BUGERENKO, E. F., AKSENOV, V. I.

"Conversions of 0-2-Biphenyllyl Dichlorothiophosphate in the Gas Phase"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, p 1423

Abstract: It was observed that on passing 0-2-biphenyllyl dichlorothiophosphate ( $2-C_6H_5C_6H_4OP(S)Cl_2$ ) in the gas phase at high temperatures through a quartz tube 90% of the material was transformed into cyclic products, namely dibenzothiophene and 10-chloro-10-thio-10-phospha-9-oxa-9,10-dihydrophenanthrene. The latter is presumably formed by intramolecular cyclization, whereas the former is formed possibly as a result of a thione-thiol isomerization.

1/1

- 27 -

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--OXIDATIVE THERMAL DEGRADATION OF SOME OLIGOSILOXANES -U-  
AUTHOR--SOBOLEVSKIY, M.V., CHERNYSHEV, E.A., LOTAREV, M.B., VISHNEVSKIY,  
P.N., NAZAROVA, D.V.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (2), 26-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--THERMAL DEGRADATION, OXIDATION, SILOXANE, MOLECULAR STRUCTURE,  
BENZENE DERIVATIVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1987/1057 STEP NO--UR/0191/70/000/002/0026/0027  
CIRC ACCESSION NO--AP0104455  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THE OXIDATIVE THERMAL DEGRADATION OF OLIGOHETEROCYCLOSILOXANES, OLIGODIMETHYLSILOXANES, OLIGODIETHYLSILOXANES (I), AND OLIGOMETHYLPHENYLSILOXANES OF STRUCTURE II WAS STUDIED BY THERMOGRAVIMETRIC ANAL. UNDER ISOTHERMAL CONDITIONS AT 200-350DEGREES. II HAD THE MAX. RESISTANCE TO OXIDN., WHEREAS I WAS LEAST RESISTANT TO OXIDN. AND ABSORBED O AT 200DEGREES. THE ABSORPTION RATE OF O WAS PROPORTIONAL TO TEMP. FOR ALL OF THE SILOXANES TESTED.

UNCLASSIFIED

USSR

ARKHANGEL'SKIY, Ye. A., ZNAMENSKIY, A. A., LUKOMSKIY, Yu. A.,  
CHERNYSHEV, E. P.

"Modeling on Analog Computers"

Modelirovaniye na Analogovyykh Vychislitel'nykh Mashinakh [English Version Above], Leningrad, Energiya Press, 1972, 208 pages (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V815 A).

Translation: This book was designed by the author to be a brief manuscript, to reflect not so much the structure of an analog computer as the peculiarities and various methods of modeling of a broad range of scientific and technical problems on analog machines.

1/1

- 71 -

USSR

UDC 669.15'27-194

STROGANOV, A. I., PYL'NEV, Yu. A., CHERNYSHEV, E. Ya., KEYS, N. V., PAKULEVA, V. S., DONETS, I. D., KHOLODOV, Yu. A., and GERMELIN, P. A., Chelyabinsk Polytechnical Institute; Chelyabinsk Metallurgical Plant

"Tungsten Losses in the Production of High-Speed Steel"

Moscow, Metallurg, No 1, Jan 71, pp 21-23

Abstract: Data are presented on seven melts of R18, R12, and R6M3 high-speed steels, an analysis is made of tungsten electric steelmelting and forge conversion processes, and methods are presented for utilizing scrap of tungsten-bearing steels. From the study the following conclusions can be made: as the tungsten content in the steel is increased, its assimilation decreases. A decrease in the proportion of tungsten through the ferroalloys as well as a decrease in the consumption of oxygen for blowing facilitate a more complete assimilation of tungsten by the metal. A substantial portion of tungsten is lost with the scrap and reguli in the slag (0.34%), the emery dust, and scale during forging. A thorough extraction of tungsten from slag and scale is suggested. Means for reducing tungsten losses in the process of heating castings and ingots in the furnaces include 1/2

USSR

STROGANOV, A. I., et al, Metallurg, No 1, Jan 71, pp 21-23

a nonoxidizing atmosphere, more rapid heating, and application of a protective coating to ingots prior to heating. To decrease decarburization and scale formation, the Chelyabinsk Metallurgical Plant has recently been using coatings comprising refractory clay (20%), M40 carborundum powder (6%), fine graphite (6%), commercial borax (3%), and liquid glass (65%).

2/2

- 65 -

USSR

UDC 621.791.042.3.01

CHERNYSHEV, G. G., and SPITSYN, V. V. (Candidates of Techn. Sciences)

"Certain Technological Characteristics of Powder Wire in Open-Arc Welding"

Moscow, Svarochnoye proizvodstvo, No 5, May 72, pp 21-23

Abstract: The study deals with changes in productivity of open-arc hard facing and weld joint dimensions as a function of operating parameters involving the use of PP-1DSK, PP-2DSK, PP-AN-7, and EPS-15/2 powder wire, 1.8, 2.3, 2.9, and 2.3 mm in diameter, respectively. Reverse-polarity direct current was used for both welding and hard facing. The productivity of hard facing is shown to increase with current for all filler wire grades and is also a function of both the diameter and cross-sectional area of the wire. Single-pass welding under optimum conditions produces satisfactory weld shapes. Except for the PP-AN7 wire, all grades featured small depths and areas of fusion. In multilayer butt welding the best results were obtained by PP-2DSK wire, while the other grades showed occasional defects in the form of pores and slag inclusions. Also included in the study are U-corner joints and welds produced with electrodes at a  $45^{\circ}$  angle. (4 illustrations, 1 table, 3 bibliographic references)

1/1

1/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--LOCAL STRESSES IN A SHELL DUE TO CONCENTRATED LOADS AND HEAT  
SOURCES -U-  
AUTHOR-(02)-URBANDOVICH, N.V., CHERNYSHEV, G.N.  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIYA NAUK SSSR, IZVESTIYA, MEKHANIKA TVERDOGO TELA, MAR.-APR.  
1970, P. 83-93. 9 REFS. IN  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL STRESS, SHELL STRUCTURE, BIBLIOGRAPHY, STRESS  
CONCENTRATION, APPROXIMATE SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0344

STEP NO--UR/0484/70/000/000/0083/0093

CIRC ACCESSION NO--AP0124101

UNCLASSIFIED



2/2 028

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124101

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF APPROXIMATE SOLUTIONS FOR SHELLS OF BOTH POSITIVE AND NEGATIVE (ZERO) CURVATURES UNDER THE ACTION OF CONCENTRATED FORCES AND MOMENTS. THE SOLUTIONS BEING VALID ONLY IN THE NEIGHBORHOOD ARE DETERMINED. THE EFFECT PRODUCED ON THE SHELL BY HEAT SOURCE CONCENTRATED AT A POINT IS CONSIDERED. LOCAL STRESSES IN THIS CASE ARE SHOWN TO BE EQUIVALENT TO THE STRESSES DUE TO A CERTAIN CONCENTRATED FORCE. PARTICULAR STRESS IS PLACED ON OBTAINING CALCULATION RESULTS WHICH ARE USEFUL IN ANALYZING THE STRESS STATES IN SHELLS WITH CURVATURES OF DIFFERENT SIGNS.

UNCLASSIFIED

USSR

UDC 632.954

TKACHENKO, G. V. and CHERNYSHEV, I. D., Odessa State University imeni I. I. Mechnikov and Ukrainian Scientific Research Station for Acroptilon Control

"Reasons for the Weak Action of Herbicides on the Root System of Acroptilon picris"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 3, Mar 70, pp 45-47

Abstract: The article describes results of a study to determine the reasons why some chemicals (2-KP, Tordon) have little effect on the root system of Acroptilon picris. It was found that the weak action of the herbicides is due in large measure to the ability of acroptilon to exude the absorbed herbicides into the root-inhabited environment. The exuded herbicides are toxic to the seeds and seedlings of cultivated plants (radishes, barley, wheat, peas, alfalfa). The amino acid composition of the root exudates of acroptilon is altered and the number of amino acids is increased, thus indicating disturbance of the metabolic processes in the plant following the application of the herbicide.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--REASONS FOR THE WEAK EFFECT OF HERBICIDES ON THE ROOT SYSTEM OF THE  
ROSE GENTIAN -U-  
AUTHOR-(02)-TKACHENKO, G.V., CHERNYSHEV, I.D.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 205-7

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, PLANT PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3004/0181

STEP NO--UR/0394/70/008/003/0205/0207

CIRC ACCESSION NO--AP0130940

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130940

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POT EXPTS. WITH 2-KF AND TORDON  
PROVED THAT THE ROSE GENTIAN (ACROPTILON PICRIS) ROOT SYSTEM HAD HIGH  
EXCRETORY ABILITY WHICH RESULTED IN DECREASING THE EFFECTIVE CONCN. OF  
HERBICIDES APPLIED AND CONSEQUENTLY CAUSED INEFFECTIVE CONTROL OF THE  
WEED. FACILITY: ODESS. GOS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

USSR

UDC 621.355.2(088.8)

ASEYNBERG, E. Ye., CHERNYSHEV, I. I., KRYUCHKOV, A. V., BETS, D. I.,  
MARSHEVA, Z. V.

"A Lead Battery"

USSR Author's Certificate No 300913, Filed 21/03/69, Published 27/05/71,  
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No  
2 L213 P by the author's).

Translation: In order to increase the specific electrical characteristics  
and simplify the technology of manufacture of a lead battery, its body is  
made as individual vessels connected by barriers, each of which is made as  
a one-piece unit with the walls of the two neighboring vessels.

1/1

USSR

UDC 534.642

PRUDNIKOV, A. S., and CHERNYSHEV, K. V., Moscow State University

"Investigation of Acoustic Multiterminal Networks"

Moscow, Akusticheskiy Zhurnal, Vol 17, No 4, 1971, pp 593-598

Abstract : Results are presented of investigations of a certain class of acoustic systems by making use of the conception of multiterminal networks. Properties of such systems are completely determined by one of interrelated matrices, characteristic and impedance. A relation is derived combining input and output impedances of a multiterminal network system. This relation can be used, e.g. for experimental matrix determination of impedances. The experimental investigation was carried out in the most simple case of a four-pole system. The problem of the effect of the apparent mass on the accuracy of results and also the possibility of model investigation of multiterminal network systems are discussed. The derived results can be used for the investigation of acoustic waveguide systems and also in designing active and reactive noise suppressors. Seven illustr., ten formulas, five biblio. refs.

1/1

- 141 -

USSR

UDC:621.016.2:669.265'24'27

SOLOVIN, S. M., ~~CHERNYSHEV, I. I.~~ and FEDORCHENKO, I. M., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Effect of Heat Treatment on the Properties of Nickel-Molybdenum and Nickel-Chrome-Molybdenum Powdered-Metal Alloys"

Kiev, Poroshkovaya metallurgiya, No 12, Dec 71, pp 44-48

Abstract: This study concerns the effect of tempering temperatures on the conductivity, notch toughness, shear strength, and corrosion resistance of sintered Ni-30Mo and Ni-15Cr-15Mo alloys. The sintered specimens of the binary alloy were subjected to normalizing from 1160°C (0.5 hr hold time). The sintered specimens of the ternary alloy were normalized from 1200°C (0.5 hr hold time) and tempered at 500-1100°C (1 hr hold time). The experimental results are reflected in curves. Resistivity measurements show that binary sintered Ni-30Mo alloys become markedly brittle and lose both shear strength and corrosion resistance on tempering at 750-800°C. High properties in sintered Ni-30Mo alloys may be achieved by rapid cooling

1/2

USSR

SOLOVIN, S. M., et al, Poroshkovaya Metallurgiya, No 12, Dec 71, pp 44-48

from sintering temperatures to 500°C. The deterioration of properties in sintered Ni-15Cr-15Mo alloys following tempering is less significant than in cast commercial grades. This might be attributed to the lower tendency of sintered ternary alloys (having fewer impurities) to  $\sigma$ -phase segregation. (4 illustrations, 11 bibliographic references).

2/2

- 20 -



USSR

UDC 621.923.019:620.192.4

CHERNYSHEV, N. A., Candidate of Technical Sciences, and SOKOLOV,  
~~V. I.~~

"Change in the Structure of Hard Alloys During Grinding"

Mashinostroitel', No 4, Apr 71, pp 36

Abstract: Experiments involving grinding of plates with a diamond grinding disk made of ASO synthetic diamond in an experimental metallic binder indicated that when hard alloys are ground with rapid transverse feed, the cutting forces  $P_y$  and  $P_z$  increase, significantly increasing the depth of structural changes. This leads to a change in the operational characteristics when the hard alloys are used as cutting tools. The hard alloy used in the experiment was type T14K8.

1/1

USSR

UDC 621.923.019:620.192.4

CHERNYSHEV, N. A., Candidate of Technical Sciences, and SOKOLOV,  
V. I.

"Change in the Structure of Hard Alloys During Grinding"

Mashinostroitel', No 4, Apr 71, pp 36

**Abstract:** Experiments involving grinding of plates with a diamond grinding disk made of ASO synthetic diamond in an experimental metallic binder indicated that when hard alloys are ground with rapid transverse feed, the cutting forces  $P_y$  and

$P_z$  increase, significantly increasing the depth of structural

changes. This leads to a change in the operational characteristics when the hard alloys are used as cutting tools. The hard alloy used in the experiment was type T14K8.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--NEW STEAM TURBINES WITH GREAT POWER MADE BY THE LENINGRAD METAL  
PLANT IMENI 27ND SESSION OF THE COMMUNIST PARTY OF THE SOVIET UNION -U-  
AUTHOR-(02)-CHERNYSHEV, P.S., LEVIN, A.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TEPLDENERGETIKA, NO. 2, 1970, PP 6-11

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METALLURGIC PLANT, TURBINE, BIBLIOGRAPHY, INDUSTRIAL  
PLANT/(U)K500166 TURBINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--1996/0356

STEP NO--UR/0096/70/000/002/0006/0011

CIRC ACCESSION NO--AP0117593

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117593

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION IS GIVEN OF THE K  
500 166 TURBINE AND CERTAIN CHARACTERISTICS ARE PRESENTED FOR SINGLE  
SHAFT UNITS WITH A 1,200 MEGAWATT OUTPUT. NINE ILLUSTRATIONS,  
BIBLIOGRAPHY CONTAINS FOUR CITATIONS. FACILITY: LENINGRAD METAL  
PLANT.

UNCLASSIFIED

USSR

UDC: 621.375

KORCHENENKOVA, V. G., Engineer, KUZENKOV, V.V., Engineer, ~~CHERNYSHEV, R. N.,~~  
Engineer, POLONNIKOV, D. Ye., Doctor of Technical Sciences

"A Low-Current Measurement Amplifier"

Moscow, Pribory i Sistemy Upravleniya, No 4, Apr 72, pp 35-37

Abstract: An amplifier with temperature control is proposed for measuring currents of the order of  $10^{-12}$ - $10^{-14}$  A with a parametric input stage which appreciably simplifies circuitry, reduces overall dimensions and weight, and thus extends the range of application of these devices. A schematic diagram is presented and the operation of the device is described. The amplifier has a gain of the order of  $10^6$  with an output of 10 V at 10 mA. Drift is  $30 \mu\text{V}/^\circ\text{C}$  and input impedance is  $10^{10} \Omega$ .

1/1

USSR

UDC: 621.394.441:621.376.55(088.8)

ZIBIN, G. V., MOZGOVOY, A. V., CHERNYSHEV, V. D.

"A Device for Reception of Signals With Phase-Pulse Modulation"

USSR Author's Certificate No 259134, filed 16 Sep 68, published 15 May 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D62 P)

Translation: The proposed device contains a pulse generator, synchronization module and FM pulse demodulator. To improve the quality of communications with use by the maximum permissible number of subscribers simultaneously, the input of the device is connected through a circuit comprised of an element for delay by half the cadence period and an adder to the demodulator and simultaneously to the first input of a flip-flop. The second input of the flip-flop, which corresponds to reset to the initial state, is connected through an element for delay by the duration of a pulse to the output of the cadence pulse generator, which is connected to the second input of the adder through an AND circuit whose inhibit input is connected to the output of the flip-flop.

1/1

- 115 -

CHERNYSHEV, V.I.

psychology

31 Mar 71

107

PROCEEDINGS

1968

129. USSR

AGEROV, V.G., KRYZHEVSKIY, A.M., and KURASHVILI, V.I., Psychology Faculty,  
Moscow State University

"On the Perception of Images Stabilized with Respect to the Retina"

Moscow, Voprosy Psichologii, No 6, Nov-Dec 70, pp 138-142

**Abstract:** Many experiments have been performed to determine the behavior of images stabilized with respect to the retina. However, in many cases the effects of the optical properties of experimental apparatus have not been considered adequately. This experiment was set up to determine the effects of different focal lengths in the lens of the apparatus attached to the eye. The apparatus used located the lens 2 millimeters from the cornea, i.e., about 5.05 millimeters from the pupil. Two sets of experiments were performed, with lenses of focal length 5.5 millimeters and 13 millimeters. Calculations indicated that the largest object which could be seen with the 5.5 millimeter focal length lens would be 2 millimeters across and would have a disc on the retina of 5.2 millimeters. In addition, the first lens would introduce angular distortions of up to almost 4 degrees from the parallel for a 2 millimeter object, while the second lens would produce no distortion at great 22 1/2 degrees.

1/2

SO: Foreign Press Digest

31 Nov 71

USSR

AGEROV, V. G., et al., Voprosy Psichologii, No 6, Nov-Dec 70, pp 138-142

The calculations were verified by experiments with three lenses. Using the lens with short focal length the subjects were unable to retain the image to be fixated, and were usually unable to recover any significant portion of it once it had disappeared. With the lens of longer focal length the subjects retained an overall image quite easily when individual components were "erased," they were easily re-covered as well. In addition, the subjects felt greater stress in using the short focal length lens. These very significant differences indicate a clear necessity for both theoretical and experimental evaluation of optical systems used in studying images stabilized on the retina. With respect to focal length, a clear superiority has been demonstrated for a lens with focal length of 13 millimeters.

2/2

USSR

UDC: 539.376+532.135

DUDUKALENKO, V. V., CHERNYSHEV, V. I.

"On the Theory of Unsteady Creep"

Tr. NII mat. Voronezh. un-ta (Works of the Scientific Research Institute of Mathematics, Voronezh University), 1970, vyp. 2, pp 100-108 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V452)

Translation: In constructing a model of a body which has creep properties, it is assumed that total deformations  $\epsilon_{ij}$  consist of elastic  $\epsilon_{ij}^e$  and momentary plastic  $\epsilon_{ij}^p$  deformations, and creep deformations --  $\epsilon_{ij}^v$ :

$$\epsilon_{ij} = \epsilon_{ij}^e + \epsilon_{ij}^p + \epsilon_{ij}^v$$

while the tensor of stresses  $\sigma_{ij}$ , which satisfies the equilibrium equations, is made up of two tensors:

$$\sigma_{ij} = T_{ij} + S_{ij}$$

It is assumed that

$$S_{ij} = \frac{\partial \Phi}{\partial (\epsilon_{ij}^p + \epsilon_{ij}^v)}; T_{ij} = \mu \dot{\epsilon}_{ij}^v; \dot{\epsilon}_{ij}^p = \lambda \frac{\partial f}{\partial T_{ij}}; \epsilon_{ij}^e = \frac{\partial \psi}{\partial \sigma_{ij}}$$

1/2

- 122 -



DUDUKALENKO, V. V., CHERNYSHEV, V. I., Tr. NII mat. Voronezh. un-ta, 1970, vyp. 2, pp 100-108

where  $\phi$  is the function of invariants of the tensor  $(\epsilon_{ij}^p + \epsilon_{ij}^e)$ .  $\mu$  is the function of invariants of the tensor  $\epsilon_{ij}^p$ .  $f(T_{ij})=0$  is the yield condition,  $\psi$  is the potential of stresses. The properties of the constructed model are briefly considered. Then, disregarding elastic deformations, the authors consider the conditions of neutral loading and unloading. In conclusion, by way of example, an annular plate is considered which is hinged around the outside edge and uniformly loaded by a transverse load around the inner edge. The plate material follows the constructed model. Elastic deformations are disregarded, it is assumed that the value of  $\mu$  is constant and  $S_{ij} = g\epsilon_{ij}$ , where  $g$  is also taken as constant. V. S. Namestnikov.

USSR

UDC 621.396.677

CHERNYSHEV, V. I.

"Effect of an Inhomogeneous Environment on the Resolution of Large Antennas"

Tr. Sib. fiz.-tekhn. in-ta pri Tomskom in-te (Works of the Siberian Technical Physics Institute at Tomsk University), 1970, vyp. 53, pp 127-131  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B12)

Translation: The effect of the conditions of radio wave propagation on the resolution of large antennas is investigated on the basis of the statistical method of solution. It is demonstrated that in the case of applicability of a beam interpretation, the antenna dimensions practically were unlimited in the centimeter and decimeter wave range. The limiting antenna dimensions outside the indicated range are defined.

1/1

- 22 -

Pharmacology and Toxicology

USSR

ALIMOV, R. A., SHUKUROV, A., KOVALEVSKAYA, R. A., and CHERNYSHEV, V. K.,  
Tashkent Scientific Research Institute of Roentgenology, Radiology, and  
Oncology, Uzbek SSR Ministry of Health

"A Study of the Effects of the NK-5 Compound on the Biological Activity of  
Thio-TEPA"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 7, Jul 71, pp 17-19

Abstract: Since most antitumor drugs cause serious injury to the hematopoietic system, an investigation was performed to establish whether the NK-5 compound, administered in conjunction with the antitumor drug Thio-TEPA to young rats with sarcoma-45 transplant, would suppress the untoward effects of Thio-TEPA. Peripheral blood sample analyses performed throughout the test (one month) revealed that the NK-5 compound prevented a drop in leukocyte concentration and increased hemoglobin and erythrocyte concentration. Moreover, these rats were growing significantly faster than the controls. Post-experimental histological examinations revealed small necrotic areas in the sarcoma transplants in rats treated with Thio-TEPA alone. In animals treated with Thio-TEPA and NK-5, the tumors had large necrotic areas in their central

1/2

USSR

ALIMOV, R. A., et al., Meditsinskiy Zhurnal Uzbekistana, No 7, Jul 71,  
pp 17-19

portions and dystrophic tumor cells in their peripheral portions. It is concluded that the NK-5 compound not only inhibits the undesirable side effects of Thio-TEPA, but also magnifies the antitumor effect of the latter.

2/2

- 45 -

USSR

UDC 621.317.757

RYZHOV, V. P., CHERNYSHEV, V. M., and TSVETKOV, F. A.

"Analysis of the Spectra of Signals With Respect to Khaar's Functions"

Tr. Taganrog. radiotekhn. in-ta (Works of the Taganrog Radio-Engineering Institute), 1972, vyp.28, pp 15-21 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A286)

Translation: The authors note the advantages of the orthogonal expansion of signals which are realized by a unit based on pulse technology elements, for example according to Khaar's functions, in comparison to the known orthogonal expansions according to the functions of Laguerre, Legendre, and Bessel. It is shown that the technique for the realization of orthogonal analyzers operating according to Khaar's functions is accomplished on the basis of electronic keys which are controlled by rectangular voltages. The use of high-speed, pulsed units and careful execution of electronic keys, integrators, and readout circuit makes it possible to obtain an error which has been brought close to that of the value for the maximum coefficient of expansion and does not exceed a percentage fraction in the frequency range up to hundreds of kilocycles. The possibility of electronic re-tuning of the studied analyzers makes it possible to utilize them in the production of adaptive systems for measurement, control, and automatic control. A.K.

1/1

USSR

UDC 611.372.832.8

CHERNYSHEV, A. A.

**"Determining the Height of the Ferrite Disc of Y-Circulators"**

Elektron. tekhnika. Nauch.-tekhn. sb. Ferrit. tekhn. (Electronics Technology. Scientific-Technical Collection of Articles. Ferrite Technology), 1971, vyp. 4(31), pp 94-95 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B147)

Translation: The author studies the parameters of a ferrite disc and the active component of the input resistance of a Y-coupling with a magnetized ferrite. Formulas are obtained for calculating the height of a ferrite disc for Y-circulators with three conducting, symmetric feed transmission lines and with nonsymmetric feed lines. It is noted that calculation according to the given formulas reduces the amount of experimental work. Original article: three bibliographic entries. V.S.

1/1

USSR

UDC 621.396.988.1

CHERNYSHEV, V.G.

"Statistical Synthesis Of Complex Navigation Systems"

Izv.VUZ: Radioelektronika, Vol XV, No 4, April 1972, pp 482-486

Abstract: Actual problems are considered of the statistical synthesis of complex navigation systems which are under the continuous influence of non-stationary random noise. Theoretical relations of optimization and methods of synthesis of 2-channel linear systems are presented. Theoretical statements are illustrated by concrete examples of the synthesis of navigation systems for position finding of a mobile object. Expressions and equations are derived which make it possible with specified correlation functions of the errors to produce a statistical synthesis of an optimum filter for a complex navigation system which is under the influence of nonstationary random noise. A block diagram is shown of such an optimum filter.

1/1

- 161 -

USSR

UDC: 621.317.023.001

CHERNYSHEV, V. O., CHERDYNTSEV, V. A.

"On the Theory of Nonstationary Complex Systems of Radio Measurements"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 179-181 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A311)

Translation: It is noted that structural redundancy makes a complex system of radio measurements appreciably more accurate than any of the facilities which make up the system. Besides this, the combination of facilities increases the reliability of information and improves the resistance of the system to interference. In combining facilities for radio measurement systems, various criteria of optimality may be used, including minimization of variance in the resultant error. The principle of construction of a two-channel system of radio measurements is outlined and illustrated by a diagram. Equations are presented which can be used with predetermined correlation error functions to synthesize an optimum filter for a complex system of radio measurements subjected to the effect of nonstationary interference. It is shown that the variance of random errors in such a system approaches zero under steady-state conditions, which is the main advantage of such systems over stationary systems. E. L.

1/1



Beryllium

USSR

UDC: 620.193.01

VOL'FSON, A. I., MARKOVA, N. Ye., CHERNYSHEV, V. V., LEBEDEV, V. N., BABAKIN, V. V.

"Some Electrophysical Characteristics of Anodic Films on Beryllium"

Moscow, Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 346-347

Abstract: The electrophysical properties of anodic oxide on beryllium were studied by measuring breakdown voltage and capacitance. Beryllium specimens in the form of discs had threaded holes in the lateral surface for screwing in V95 aluminum alloy conductive rods insulated by a mixture of wax and rosin. Before anodizing, the specimens were degreased and then oxidized in a 20% aqueous solution of  $\text{CrO}_3$ . Current density was  $20 \text{ A/dm}^2$ , and temperature was  $20^\circ\text{C}$ . The resultant films had a thick porous outer layer and a thin barrier on the metal side. Film capacitance was measured in the same solution. a Teflon ring was pressed against the porous surface layer and filled with mercury. High surface tension kept the mercury from filling the pores in the film. In the resultant capacitor, the air in the pores and the film oxide served as the dielectric. The capacitance was determined by the total thickness of the oxide film. The results of these

1/2

USSR

VOL'FSON, A. I. et al., Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 346-347

measurements show that film thickness remains essentially constant with time. Measurements of the critical breakdown voltage of the film confirmed the capacitance measurements. Thick films formed over a 3-4 hour period can withstand voltages up to 1000 V.

2/2

USSR

UDC 535.33

YERMAKOVA, YE. G.; KRASNOVA, T. L., MALYKHINA, N. N., MOSIN, A. M.,  
ONOPRIYENKO, M. I., CHERNYSHEV, YE. A., and SHPAK, M. T., Institute of Physics,  
Academy of Sciences Ukrainian SSR, Kiev

"Electron-Vibrational Absorption Spectra in the Near UV of Phenylsilane and  
Methylphenylsilanes"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 5, May 72, pp 811-817

Abstract: The article describes results of a study of electronic vapor and  
crystal absorption spectra for phenylsilane  $C_6H_5SiH_3$  and methylphenylsilanes  
 $C_6H_5SiH_2CH_3$ ,  $C_6H_5SiH(CH_3)_2$ ,  $C_6H_5Si(CH_3)_3$ , as well as a comparison of the ef-  
fect of the silicon atom on the aromatic ring with the effect of carbon in  
hydrocarbon molecules similar in structure. It was found that replacement of  
the carbon atom by silicon in the molecules investigated results in a 300-360  
 $cm^{-1}$  increase in the spectrum shift to the long-wavelength region and intensi-  
fication of the transition considered. This indicates great distortion of  
the hexagonal symmetry of the pi cloud of the phenyl ring in organosilicon

1/2

USSR

YERMAKOVA, YE. G., et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 5,  
May 72, pp 811-817

molecules as compared to the analogous hydrocarbon molecules. The spectral data suggest that there is hyperconjugation between the Si-H bonds and the phenyl ring. Electronic excitation is found to have a greater effect on the silyl group than on the alkyl group, possibly due to the  $(p-d)_{\pi}$ -interaction between silicon and the pi electrons of the aromatic ring.

2/2

- 83 -

USSR

UDC 547.245

BUGERENKO, YE. F., PETUKHOVA, A. S., BORISENKO, A. A., CHERNYSHEV, YE. A.

"Problem of the Structure of the Products of Interaction of Alkyl Silane Halides with Sodium Dialkyl Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, p 216

Abstract: For the products of the interaction of  $(CH_3)_3SiCl$ ,  $(CH_3)_2SiCl_2$ ,  $CH_3SiCl_3$  and  $SiCl_4$  with sodium diethyl phosphite, in the  $^{31}P$  nuclear magnetic resonance spectra, signals are observed which are split into a quintet as a result of the interaction of the phosphorus nuclei with the four  $CH_2$ -protons of the ethoxyl groups ( $J \approx 8$  hertz). The chemical shifts of the observed signals with respect to 85% of the orthophosphoric acid  $\delta_p$  lie within the limits of -123 to -128, that is, in the range characteristic of trialkyl phosphites [J. R. Van Wazer, et al., J. Am. Chem. Soc., No 78, 5715, 1956] and organosilyl phosphinates [K. Lssleib, et al., Angew. Chem., No 79, 59, 1967] and not the derivatives of the four-coordination atom of phosphorous. Thus, the  $^{31}P$  nuclear magnetic resonance spectra confirm the structure of the products of interaction of trialkyl silane halides with sodium dialkyl phosphites, just as the derivatives of trivalent phosphorus containing the SiOP fragment. 1/1

USSR

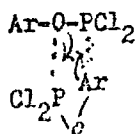
UDC 547.26'118

CHERNYSHEV, YE. A., AKSENOV, V. I., BUGERENKO, YE. F.

"Concerning Pyrolysis of Aryl Dichlorophosphites in a Gas Atmosphere"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, p 1648

Abstract: The authors passed 145 grams of phenyl dichlorophosphite  $C_6H_5OPCl_2$  at  $570^\circ C$  through a hollow quartz tube at such a rate of flow that the vapor remained in the reaction zone for 50 seconds. Gas-liquid chromatography showed the following compounds in 129 grams of the resultant condensate: benzene,  $PCl_3$ ,  $POCl_3$  (total concentration 9.6%), the initial compound  $C_6H_5OPCl_2$  (31%), phenyl dichlorophosphate (14.4%), phenyldichlorophosphine (16.2%), and also three unidentified high-boiling compounds (28.8%). Thus pyrolysis of phenyl dichlorophosphite takes place in accordance with the reaction



1/2

USSR

CHERNYSHEV, YE. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 7,  
Jul 72, p 1648

which is assumed to be the common reaction for aryl dichlorophosphites  
under the given conditions.

2/2

- 34 -

USSR

UDC 547.558.1

CHERNYSHEV, YE. A., ARSENOV, V. I., PONOMAREV, V. V., GOLUBTSOV, S. A., BUGER-ENKO, YE. F.

"Organophosphorus Heterocyclic Compounds. III. Synthesis and Conversions of 10-chloro-10-phospha-9-oxa-9,10-dihydrophenanthrene"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 93-96

Abstract: The method of intramolecular ring formation was used on o-xenyloxy-dichlorophosphine in the liquid phase in the presence of  $AlCl_3$  to obtain 10-chloro-10-phospha-9-oxa-9,10-dihydrophenanthrene. The chemical conversions of 10-chloro-10-phospha-9-oxa-9,10-dihydrophenanthrene take place both with conservation of the tricyclic structure (hydrolysis, addition of sulfur, methoxylation) and with splitting of the ring containing the P-O bond (Grignard methylation). Some physical characteristics, the percentage yield and formulas are tabulated and the experimental procedures for synthesis are presented for the mentioned compounds.

1/1



USSR

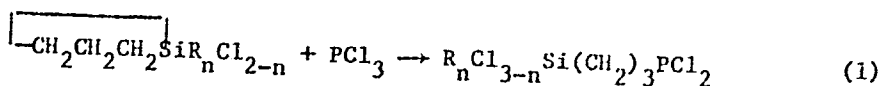
UDC 547.245+547.26'118

BUGERENKO, YE. F., PETUKHOVA, A. S., CHERNYSHEV, YE. A.

"New Method of Synthesizing Silicon-Phosphorus-Containing Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 168-172

Abstract: The high reactivity of the endocyclic silicon-carbon bond in sila-cyclobutane in the processes connected with opening the ring [K. A. Andrianov, et al., Organomet. Chem. Rev., No 2, 153, 1967] predetermines the possibility of using this class of heterocycles to synthesize silicon-phosphorus-containing compounds by the scheme

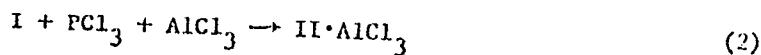


II

R = alkyl; n = 0, 1, 2.

The authors succeeded in synthesizing  $\gamma$ -alkylchlorosilylpropyldichlorophosphines (II) by scheme (1) in the presence of aluminum trichloride as the catalyst:

1/2



- 20 -

USSR

BUGERENKO, YE. F., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 168-172

Thus, it was found that silacyclobutanes and silacyclopentanes react with phosphorus trichloride in the presence of aluminum chloride with the formation of silicon-phosphorus containing compounds of the  $R Cl_{3-n} Si(CH_2)_n KPCl_2$  type. The compounds obtained enter into reactions characteristic of both the derivatives of trivalent phosphorus (oxidation, addition of sulfur and chlorine) and for chlorosilanes. The yields, properties and analytical data on the synthesized silicon-phosphorus containing compounds are tabulated, and the experimental procedures for synthesizing them are presented.

2/2

USSR

UDC 547.558

CHERNYSHEV, YE. A., AKSENOV, V. I., BUGERENKO, YE. F.

"Organophosphorus Heterocyclic Compounds. 2. Synthesis and Conversions of 10-Chloro- and 10-(2-Biphenyloxy)-10-Oxo-10-Phospha-9-Oxa-9,10-Dihydrophenanthrene"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971,  
pp 2189-2192

Abstract: A mixture of two heterocyclic (P,P-chloroxo-9-oxa-10-phospha-9,10-dihydrophenanthrene (I) and P,P-(2'-biphenyloxy)oxo-9-oxa-10-phospha-9,10-dihydrophenanthrene (II)) was prepared by gas phase pyrolysis, at 585 and 600°, of 2'-biphenyl dichlorophosphate (III) and bis-(2'-biphenyl) chlorophosphate (IV), respectively. The total yield of I and II was 42 percent and 75 percent of theoretical in cyclization of III and IV, respectively. Intramolecular cyclization of III and IV to I and II proceeds by breaking of the P-Cl bond with formation of HCl. Formation of II in the pyrolysis of III is explained by intermediate disproportionation of III to IV and POCl<sub>3</sub> and formation of I in

1/2

USSR

CHERNYSHEV, YE. A., et al, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2189-2192

the pyrolysis of IV can proceed by breaking of P-O bond with formation of o-hydroxybiphenyl. In the reactions with various reagents, e.g., Grignard reagents, lithium aluminum hydride, the compounds I and II were converted into three-membered fused heterocyclic or open-chain compounds via breaking of P-O bond of the heterocycle, depending on the nature of the substituent at the P atom. The experimental procedures are described.

2/2

- 53 -

USSR

UDC 547.241 547.245 547.732

CHERNYSHEV, YE. A., BUGERENKO, YE. F., PETUKHOVA, A. S.

"Thiophene Derivatives With Silicon and Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2186-2189

Abstract: A series of previously unknown ethyl  $\alpha$ -thienyl(triorganosilyl) methylphosphinates (I-VI), potential antiwear additives to silicone oil, were synthesized by the Arbuzov reaction (at 120-140°) between diethyl  $\alpha$ -thienylphosphonite (VII) and chloromethyltriorganosilanes, where the organic group is methyl, phenyl, or ethoxy. Reactivity of (VII) in the cited reaction was compared with that of diethyl phenylphosphonite, using gas-liquid chromatography. The comparative plots of the yield and reciprocal values of concentration of the reaction products versus time show that VII is less reactive than its phenyl analog. This expected result could be explained by a decrease in nucleophilic activity of P atom in VII in relation to the phenyl analog. The formulas and some physical constants of the I\*-VI compounds are tabulated and the preparation procedures are described.  
1/1

- 52 -

USSR

UDC 547.558.1

CHERNYSHEV, Ye. A., BYGERENKO, Ye. F., and AKSENOV, V. I.,

"Organophosphorus Heterocyclic Compounds. I. Pyrolytic Cyclization of o-Biphenyloxydichlorophosphine in Gas Phase"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 800-804

Abstract: Passing vapors of o-biphenyloxydichlorophosphine (I) through a quartz tube at 550-600° forms 9-chloro-9-phosphafluorene (III) and 10-chloro-10-oxy-10-phospha-9-oxa-9,10-dihydrophenanthrene (IV) instead of the expected 10-chloro-10-phospha-9-oxa-9,10-dihydrophenanthrene (II). In addition to (I), (III), and (IV), the condensate also contained  $PCl_3$  and traces of biphenyl, o-chlorobiphenyl, and dibenzofurane, the last three compounds forming probably due to disproportionation of the substituents on the phosphorus atom. When (I) was diluted 10 fold with benzene no (III) or (IV) formation was observed. Specially prepared (II) was found to be stable under above pyrolytic conditions, yielding no (III) or (IV); it could not be considered an intermediate product.

1/1

USSR

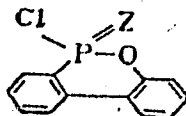
UDC 547.677.2'26.118.07

CHERNYSHEV, Ye. A., BUGERENKO, Ye. F., and AKSENOV, V. I.

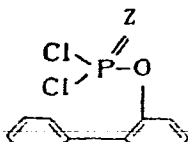
"A Method of Making Derivatives of 9-Chloro-9-phospha-10-oxa-9,10-dihydro-phenanthrene"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289095, division C, filed 9 Oct 69, published 8 Dec 70, p 77

Translation: This Author's Certificate introduces: 1. A method of making derivatives of 9-chloro-9-phospha-10-oxa-9,10-dihydrophenanthrene of the general formula



where Z is O or S. As a distinguishing feature of the patent, compounds of the general formula



USSR

CHERNYSHEV, Ye. A., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289095, division C, filed 9 Oct 69, published 8 Dec 70, p 77

where Z is O or S are heated in the gas phase with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that the process is carried out at a temperature of 500-600°C. 3. A modification of this method distinguished by the fact that the process is carried out in such a way that the initial product is in the reaction zone for 10-100 seconds.

2/2

- 35 -



USSR

UDC 547.26\*118

AKSENOV, V. I., CHERNYSHEV, Ye. A., BUGERENKO, Ye. F., and BORISENKO, A. A.

"Thione-Thiol Isomerization of o-Phenyl Dichlorothiophosphate in the Gas Phase"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 484-485

Abstract: In an investigation of thione-thiol isomerization, o-phenyl dichlorothiophosphate (I) was passed through a quartz tube at  $550^{\circ}$  at a rate assuring the passage of the vapor through the tube within 40 sec. from the condensed product obtained the following compounds were isolated:  $\text{PCl}_3$ ,  $\text{POCl}_3$ ,  $\text{PSCl}_3$ , phenyl dichlorophosphate, starting material, S-phenyl dichlorothiophosphate, and additional six high-boiling compounds which were not identified. Thus the thionethiol isomerization was shown to take place; due to highly labile S-P bond, however, many side reactions accompany the isomerization.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--SYNTHESIS OF ORGANSILICON ORGANOPHOSPHORUS COMPOUNDS BY THE  
ARBUZOV REACTION -U- 2  
AUTHOR-(03)-BUGERENKO, YE.F., PETUKHOVA, A.S., CHERNYSHEV, YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 609-11  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC SYNTHESIS, ORGANSILICON COMPOUND, ORGANIC PHOSPHORUS  
COMPOUND, CHLORINATED ORGANIC COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1175 STEP NO--UR/0079/70/040/003/0609/0611  
CIRC ACCESSION NO--AP0128597  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0128597

ABSTRACT/EXTRACT--(U) GP-0-  
GRAPHIC INFORMATION.

ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ANIONIC POLYMERIZATION OF METHYLPHENYLCYCLOSILOXANES -U-  
AUTHOR--(04)-BORISOV, S.N., KURLOVA, Z.V., YUZHELEVSKIY, YU.A., CHERNYSHEV,  
YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 332-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--POLYMERIZATION, SILOXANE, CYCLIC GROUP, BENZENE DERIVATIVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/0725 STEP NO--UR/0460/70/012/005/0332/0334  
CIRC ACCESSION NO--AP0136164  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136164

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. RATE OF THE TITLE MONOMERS (I) IN THE PRESENCE OF K POLY(DIMETHYLSILOXANE)DIOLATE DECREASED IN THE ORDER:

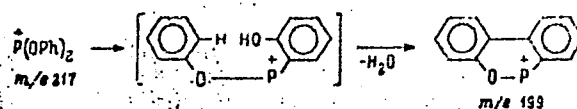
1,3,5,7,TETRAPHENYL,1,3,5,7,TETRAMETHYLCYCLOTETRASILOXANE SIMILAR TO  
1,3,5,TRIPHENYL,1,3,5,7,7,PENTAMETHYLCYCLOTETRASILOXANE GREATER THAN  
HEXAMETHYLDIPHENYLCYCLOTETRASILOXANE GREATER THAN  
1,1,DIPHENYL,3,3,5,5,7,7,HEXAMETHYLCYCLOTETRASILOXANE GREATER THAN  
HEPTAMETHYL(PHENYL)CYCLOTETRASILOXANE GREATER THAN  
OCTAMETHYLCYCLOTETRASILOXANE. THE INCREASED POLYMN. RATE OF I WAS  
ATTRIBUTED TO THE INDUCTIVE EFFECT OF PH GROUPS ADJACENT TO THE SI ATOM.  
FACILITY: VSES. NAUCH.--ISSLED. INST. SIN. KAUCH. IM. LEBEDEVA,  
LENINGRAD, USSR.

UNCLASSIFIED

USSR

BOCHKAREV, V. N., et al., Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, pp 2348

9-phospha-10-oxa-9,10-dihydrophenanthrenyl cation.



The spectrum of (I) also showed the rearrangement peaks of ions with  $m/e$  170 ( $\text{PhOPh}^+$ ) 70%,  $m/e$  153 ( $\text{PhC}_6\text{H}_4^+$ ) 12%, and  $m/e$  94 ( $\text{PhOH}^+$ ) 20%. When the ionizing voltage in the mass spectrum of (I) reached 15 volts, the relative intensity of ions with  $m/e$  310, 217, 77, 199, 170, 153, and 94 amounted to 47, 100, 2, 2, 4, 5, and 15%, respectively. In other words, the intensity of the rearranged ions decreased sharply.

2/2

~~Theoretical Automation~~

USSR

UDC: 577.4

CHERNYSHEV, Yu. O.

"Algorithms for Determining the Shortest Coverings"

Riga, V sb. Metody i modeli upr. (Methods and Models of Control--  
collection of works) No 4, 1973, pp 90-94 (from RZh--Matematika,  
No 7, 1973, Abstract No 7V433)

Translation: An algorithm of the gradient type is proposed for  
finding the shortest disjunctive normal form of algebraic logic  
functions. In the author's opinion this algorithm differs "by  
its least redundancy as compared with earlier known algorithms."  
This opinion is not confirmed. V. Leont'yev

1/1

USSR

CHERNYSHEV, YU. O.

"Method of Planning and Designing Single Cycle Circuits"

V sb. Metody i modeli upr. (Control Methods and Models--collection of works),  
vyp. 2, Riga, 1972, pp 3-9 (from RZh-Kibernetika, No 12, Dec 72, Abstract No  
12V273)

No abstract

1/1

- 21 -



USSR

UDC 512.25/.26+519.3:330.115

CHERNYSHEV, Yu. O.

"Reduction of Certain Optimal Problems of Diagnosis of Discrete Automata to Solution of Problems of Flows in Nets"

Metody Sredstva Tekhn. Kibernet. [Methods and Equipment of Engineering Cybernetics -- Collection of Works], No 8, Riga, 1970, pp 3-9, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V509).

NO ABSTRACT.

USSR

UDC 669.715:548.4

BARANOV, A. A., MOVCHAN, V. F., and CHERNYSHEVA, I. A., Dnepropetrovsk

"Effect of Fusion on Volume Growth of Aluminum Alloys During Thermal Cycling"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 74, pp 164-168

Abstract: Alloys were prepared from aluminum grade AVO with semiconductor silicon (2.5 and 5 wt %) and electrolytic copper (4.5, 5.0, 6.0, 7.0, 7.5, and 9 wt %) for the purpose of studying grain boundary fusion during heating which lowers the properties of heat-resisting alloys. These alloys were subjected to thermal cycling which involved heating them from their eutectic temperature + 10° and cooling to room temperature or cooling them from the eutectic temperature to -40°C and heating to room temperature for a finite number of cycles. Heating the alloys to above the eutectic temperature causes grain-boundary fusion and the formation of gas pores and cracks, which in turn causes volume growth and reduced density. The amount of growth is a function of the copper and silicon content which increases with increased alloy content. It was observed that thermal cycling in a vacuum lowered density more than when cycling in air and that density drop was less when the alloys had been produced in a sand mold rather than a chill mold.

1/2

USSR

BARANOV, A. A., et al Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 74, pp 164-168

O. V. LEBDEV, L. A. SHEVCHENKO, and V. V. YASHCHENKO, participated in these experiments. Three figures, 12 bibliographic references.

2/2

- 5 -

USSR

CHERNYSHEVA, L. V., CHEREPKOV, N. A.

"Program for Calculation of Atomic Wave Functions in the Hartry-Fock Approximation"

Physics and Technology Institute, Academy of Sciences USSR, Preprint No 337, Leningrad, 1971, 60 pages, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V714 by V. Mikheyev).

Translation: Descriptions are presented of algorithms and programs for calculation of wave functions of the base state of an atom and the wave function of the excited state of discrete and continuous spectra in the Hartry-Fock approximation. The equations are solved by successive refinement of functions. The wave functions of the excited states are located in a fixed stop field without selfmatching. Their calculation is performed considering non-diagonal parameters, thanks to which the wave functions of the excited and base states are orthogonal. The programs are written in ALGOL and designed for the utilization of an alpha translator.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--MANY ELECTRON CORRELATIONS IN PHOTOABSORPTION IN THE M SHELL OF AR  
-U-  
AUTHOR--(03)-AMUSTIA, M.YA., CHEREPKOV, N.A., CHERNYSHEVA, L.V.  
COUNTRY OF INFO--USSR  
SOURCE--PHYS. LETTERS A (NETHERLANDS), VOL. 31A, NO. 10, P. 553-4 (18 MAY  
1970)  
DATE PUBLISHED--18MAY70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--IONIZATION CROSS SECTION, PHOTOIONIZATION, ELECTRON  
INTERACTION, ELECTRON SHELL STRUCTURE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605030/E01 STEP NO--NE/0000/70/031/010/0553/0554  
CIRC ACCESSION NO--AP0141848  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141848

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE M SHELL PHOTOIONIZATION CROSS  
SECTION OF AR INCLUDING MANY BODY CORRELATIONS IN THE RANDOM PHASE  
APPROXIMATION WITH EXCHANGE IS FOUND. THE RESULT IS IN GOOD AGREEMENT  
WITH EXPERIMENT. FACILITY: ACAD. SCIENCES USSR, LENINGRAD.

UNCLASSIFIED

USSR

UDC: 681.325.65-525

CHAPLYGIN, E. I., TROSHKIN, A. K., SEMELEV, I. F., BORODIN, Yu. F.,  
SYCHEV, Ye. A., GLYZIN, A. N., CHERNYSHEVA, M. A., KASPARGOV, G. Ye.,  
Volga Affiliate of the All-Union Scientific Research Institute of Abrasives  
and Grinding

"An OR-NOR Fluidic Element"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
1970, No 33, Soviet Patent No 285341, class 42, filed 14 Jul 69, published  
29 Oct 70, pp 118-119

Translation: This Author's Certificate introduces an OR-NOR fluidic  
element which contains supply, control, and output channels; a jet inter-  
action chamber; and also channels which are open to the atmosphere. As  
a distinguishing feature of the patent, the device is designed for im-  
proved stability of the characteristics of the element. The unit contains  
an added projection on the wall opposite the control channels preceding  
the corresponding channel which is open to the atmosphere, and also an  
additional chamber made in this channel which is open to the atmosphere  
and located immediately behind the projection.

1/1

1/2 015

UNCLASSIFIED

PROCESSING DATE--11DEC70

TITLE--JET TYPE ELEMENTS OF THE VOLGA SYSTEM AND THEIR APPLICATION -U-

AUTHOR--(05)--KRIVOSHEYEV, G.YA., CHEKNYSHEVA, M.A., TROSHKIN, A.K.,  
SHMELEV, L.F., TIKEDZHE, B.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIKORY I SISTEMY UPROVLENIYA, NO 5, 1970, PP 19-21

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--AUTOMATIC CONTROL SYSTEM, FLUIDIC LOGIC DEVICE, FLUIDIC  
CONTROL DEVICE, FLUIDIC AMPLIFIER, PLASTIC/PL/VOLGA FLUIDIC CONTROL  
SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605040/F06 STEP NO--UR/0445/70/000/005/0019/0021

CIRC ACCESSION NO--AP0142709

UNCLASSIFIED



2/2 015

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142709

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH THE DEVELOPMENT OF JET TYPE ELEMENTS AND THE INTRODUCTION OF PNEUMATIC CONTROL SYSTEMS IN INDUSTRY. THE PNEUMATIC AND HYDRAULIC AUTOMATION LABORATORY OF THE VOLGA BRANCH, ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF ABRASIVES AND GRINDING, HAS DEVELOPED AND IS ENGAGED IN THE SERIES PRODUCTION OF TWO TYPES OF JET TYPE ELEMENTS: A TRIGGER WITH SEPARATE INPUTS AND A OR-NOT-OR ELEMENT FOR TWO INPUTS WITH INHIBITION. THE TRIGGER IS A BISTABLE FLUIDIC AMPLIFIER WITH TWO INPUTS, TWO OUTPUTS, A SUPPLY CHANNEL AND A MIXING CHAMBER. THE TECHNICAL SPECIFICATIONS OF THE TRIGGER ARE GIVEN. THE OR-NOT-OR ELEMENT IS A MONOSTABLE FLUIDIC AMPLIFIER WITH THREE INPUTS, TWO OF THEM CONTROLLING AND ONE INHIBITING. THE OPERATING PRINCIPLE IS THE SAME AS FOR THE TRIGGER. THE TECHNICAL SPECIFICATIONS ARE GIVEN. THE FLUIDIC ELEMENTS DISCUSSED HERE HAVE BEEN PRODUCED FROM PLASTIC BY MEANS OF PRESSURE CASTING ACCORDING TO A SPECIFIED SEQUENCE OF TECHNOLOGICAL OPERATIONS. A FLUIDIC CONTROL SYSTEM IS BASED UPON A LOGICAL UNIT, CONSISTING OF LOGICAL ELEMENTS PLUGGED INTO A BASE ACCORDING TO THE TYPE OF UNIT DESIRED.

UNCLASSIFIED

USSR

UDC 911.3.616.831-002.576.895.42(474.2)

VASIL'YEVA, K. A., and CHERNYSHEVA, M. G.

"Some Results of a Study on the Southeast Natural Focus of Tickborne Encephalitis in Estonian SSR"

Eesti Pollumaj, Akad. tead. tööde kogumik, Sb. nauchn. tr. Est. s.-kh. akad. (Collection of Scientific Works, Estonian Agricultural Academy), 1970, No 70, pp 122-124 (from RZh-36.. Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.88 by V. Maslovskaya)

Translation: In the 1950-1969 period, the incidence of tickborne encephalitis was insignificant — from one to ten cases a year. This incidence, however, was always in the southeast rayons, and in the last years was registered only in Tartyskiy rayon. Five species of Ixodes ticks were found, with Ixodes persulcatus the chief vector. During the 1968-1969 investigation of blood serum in five rayons of SE Estonian SSR, the hemagglutination inhibition test showed antihemagglutins in titres from 1:10 to 1:40 in 33.3+5% of cases. The population of Kokhtla-Yrva had a great number of positive reactions — 61.5+14% of all tests. This indicates the possible spread of tickborne encephalitis virus in Estonia.

1/1

USSR

UDC 616.981.42-092.9-07:616.15-097.5

VERSHILOVA, P. A., CHERNYSHEVA, M. I., KNYAZEVA, E. N., and DRANOVSKAYA, Ye. A.,  
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical  
Sciences USSR, Moscow

"A Study of the Preventive and Opsonic Activity of IgM- and IgG-Antibodies in  
Experimental Brucellosis Infection"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973,  
pp 37-40

Abstract: The preventive activity of IgM- and IgG-antibodies obtained from  
guinea pigs 15 days to 18 months after infection by Br. melitensis was assessed  
by injecting whole serum and separate immunoglobulin fractions into white mice  
and subsequently infecting them with Br. melitensis. Opsonic activity was  
determined by the degree to which serum and immunoglobulin fractions activated  
neutrophils. Preventive activity of the immunoglobulin fractions followed the  
pattern of the quantity of antibodies, chiefly hemagglutinins, contained within  
them. Antibody quantity and preventive activity of the IgM fraction increased  
from the 15th day, peaked at 1-2 months and then dropped for the remaining  
period of observation, while those of the IgG fraction arose 20 days later  
than in the IgM fraction and persisted throughout the remaining period.

1/2

USSR

VERSHILOVA, P. A., et al., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 37-40

Neutrophil activity of serum rose from 8-16% in the first 15 days to 26-40% after 2-6 months, and then dropped for the remaining period. While the IgM fraction displayed no opsonic activity, the activity of the IgG fraction followed the pattern of activity displayed by serum. Thus it is shown that IgG-antibodies dominate in protecting guinea pigs from brucellosis infection.

2/2

- 19 -

USSR

UDC 616.981.42-085.37-097

CHERNYSHEVA, M. I., KNYAZEVA, E. N., and DRANOVSKAYA, Ye. A., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, Moscow

"Comparative Characteristics of Immunoglobulins Arising in Response to Immunization by Various Brucella Antigens"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 90-93

Abstract: Guinea pigs were immunized with live Br. abortus 19-BA vaccine, killed corpuscular vaccine, and Brucella wall antigens to reveal the nature of immunoglobulins produced in response. Serum from immunized animals was subjected to the agglutination reaction, the passive hemagglutination reaction, and cysteine sensitivity tests to detect antibodies and determine whether they are IgM or IgG. With live vaccine IgM-antibodies predominated within the 1st month and then disappeared, while IgG-antibodies were low in quantity during the 1st month but predominated thereafter (to 8 months). A single injection of killed virus produced IgM-antibodies only. A second injection 10 days later caused no changes in antibody production. A third injection caused short-term synthesis of IgG-antibodies. Finally, antigens isolated  
1/2

USSR

CHERNYSHEVA, M. I., et al., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 90-93

from Brucella cell wall were only capable of inducing insignificant synthesis of IgM-antibodies. IgG-antibodies were detected in insignificant quantities only on the 17th-30th days. Of 4 methods for obtaining wall antigens, ether-water extraction produced the strongest antigens. Thus production of specific antibodies of different types depends on the properties of the Brucella antigen and the multiplicity of infection.

2/2

- 18 -

USSR

UDC 616.981.42-07:616.15-097.5

CHERNYSHEVA, M. I., and DUYSENOV, K. D., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, and Central Institute of Advanced Training of Physicians

"Characteristics of Incomplete Antibodies in Acute and Chronic Brucellosis Patients"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 97-99

Abstract: Study of the sera of 166 brucellosis patients using Coombs test revealed the presence of incomplete antibodies more often than complete antibodies in the agglutination reaction and in titers almost three times as high, especially in those with acute brucellosis. Sera treated with cysteine contained incomplete antibodies varying in sensitivity to the amino acid. The number of cysteine-resistant incomplete antibodies depended on the severity of the disease. They were detected in patients with a moderately severe and severe course twice as often and in higher titers than in those with a mild course. In chronic cases, cysteine-resistant complete and incomplete antibodies were found chiefly during exacerbations.

1/1

USSR

UDC 616.981.42-07:616.15-097.5-074

CHERNYSHEVA, M. I., KNYAZEVA, E. N., DUYSENOV, K. D., and SHCHERBAK, Yu. F.,  
Institute of Epidemiology and Microbiology imeni Gamaleya and Central  
Institute for the Advanced Training of Physicians

"Use of the Cysteine Test to Detect 7S(IgG) Antibodies in Acute, Chronic,  
and Residual Brucellosis Patients"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971,  
pp 102-105

Abstract: The indirect hemagglutination test revealed the presence of the  
microglobulin 7S(IgG) in the cysteine-treated serums of all 35 patients with  
acute or subacute brucellosis and in 64 of 160 patients (40%) with chronic  
brucellosis (especially during exacerbation of the disease). The antibody  
was not found in those with residual brucellosis. The presence of this  
antibody is thus an indicator of the activity and severity of the course  
of the infection.

1/1

- 37 -



Immunology

USSR

UDC 616.981.42-036.12-078.7

~~CHERNYSHEVA, M. I.~~, KNYAZEVA, E. N., and SHCHERBAK, Yu. F., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Brucellosis Laboratory Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Scientific Research Group, Academy of Medical Sciences USSR

"A Comparative Study of the Diagnostic Usefulness of Serological Reactions in Chronic and Residual Brucellosis"

Moscow, Sovetskaya Meditsina, No 12, 1971, pp 82-86

Abstract: The common medical tests for chronic or residual brucellosis, the agglutination reaction, the Huddleson test, and the allergic skin test of Burnet were considered not sensitive enough to detect brucellosis antibodies in blood serum. Three new serological tests have been developed recently (the indirect hemagglutination reaction, immunofluorescence reaction, and Coombs test), and their diagnostic effectiveness has been clinically evaluated. The experimental group consisted of 164 hospitalized brucellosis patients -- men, women, young, and old, chronic cases, mild, moderate, and severe forms, and residual cases. Brucellosis was diagnosed in these patients by means of clinical observation, epidemiological anamnesis, and

1/2

USSR

CHERNYSHEVA, M. I., et al., Sovetskaya Meditsina, No 12, 1971, pp 82-86

positive results from laboratory tests. The allergic skin test of Burnet gave a positive reaction with 59% of these subjects. Positive serological reactions were obtained in 84% of all patients, chronic and residual, when the Coombs test was tried. The immunofluorescence method identified 61%, with indirect hemagglutination next in effectiveness at 53%. The agglutination reaction was the least sensitive (35%). When analyzed according to the various states of brucellosis, chronic mild, chronic moderate and severe, and residual, the Coombs test was most sensitive in detecting incomplete antibodies. The immunofluorescence reaction and the indirect hemagglutination reaction were also effective in detecting brucellosis. The agglutination reaction usually gave less than 50% positive reactions. All tests had the least number of positives in residual brucellosis. The Coombs test and immunofluorescence were able to detect brucellosis antibodies no matter how the antigen entered the patient (vaccine therapy, preventive inoculation, original infection, or repeat infection). Actually, serological reactivity even increased after vaccine therapy.

2/2

- 49 -

1/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--CELLULAR AND HUMORAL INDICES OF VACCINAL IMMUNOGENESIS IN  
BRUCELLOSIS -U-

AUTHOR--(02)-VERSHILOVA, P.A., CHERNYSHEVA, M.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,  
PP 77-80

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNITY, BRUCELLOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/0094

STEP NO--UR/0016/70/000/005/0077/0080

CIRC ACCESSION NO--AP0114490

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114490

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PAPER TREATS OF IMMUNOLOGICAL REACTIVITY OF THE ORGANISM IN FORMATION OF VACCINAL IMMUNITY IN BRUCELLOSIS. IN PARTICULAR, A STUDY WAS MADE OF THE ROLE PLAYED BY CELLULAR AND HUMORAL INDICES IN THE RESISTANCE OF THE ORGANISM TO INFECTION WITH THE VIRULENT CULTURE. THERE WAS ESTABLISHED A CORRELATIVE DEPENDENCE BETWEEN THE OPSONIC AND PREVENTIVE ACTIVITY OF THE SERUM, ACTIVATION OF PHAGOCYtic PROCESSES IN THE RETICULOENDOTHELIAL ELEMENTS AND THE STATE OF IMMUNITY. FACILITY: INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII IM. GAMALEI AMN SSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 616.981.42-07:616.153.962.4-097-01

VERSHILOVA, P. A., CHERNYSHEVA, M. I., and KNYAZEVA, E. N., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Characteristics of Immune Globulins in Brucellosis and After Vaccination"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1970, pp 100-105

Abstract: Studies on the dynamics of microglobulin and macroglobulin production in guinea pigs vaccinated and infected with Brucella were conducted. Antibodies were determined by the agglutination and indirect hemagglutination reactions at various intervals until 12 months after the start of the experiment. Sera were treated with cysteine to detect the antibodies. Macroglobulins (19S, IgM,  $\gamma$ M) appeared after about two weeks in both vaccinated and infected animals. Microglobulins (7S, I $\gamma$ G,  $\gamma$ G) appeared in the third week, against a background of maximum antibody production. Antibody titers did not exceed 1:160 in vaccinated animals, but reached 1:1280-1:2560 in infected animals. The infectious process was characterized by high microglobulin titers throughout the observation period (12 months). The indirect hemagglutination reaction was more sensitive than the agglutination reaction in detecting microglobulins in cysteine-treated sera.

1/1

USSR

UDC 632.95

KOST, A. N., YUDIN, N. B., CHERNYSHEVA, N. B., TERENIN, V. I., Moscow University

"A Method of Making  $\beta$ -Indolyl Carboxylic Acid Amides"

USSR Author's Certificate No 339542, filed 10 Sep 70, published 23 Jun 72 (from RZh-Khimiya, No 9, May 73, abstract No 9N558 by T. G. Chekareva)

Translation: Amides of  $\beta$ -indolyl carboxylic acids, which may find application as growth regulators for plants and microorganisms or as intermediates for synthesizing medicines, are synthesized by saponification of the corresponding nitriles with concentrated  $H_2SO_4$  while cooling to 0-5°C. Example. 3.12 g of 3-indolyl acetonitrile are added to 25 ml of concentrated  $H_2SO_4$  cooled to 0°C while mixing and cooling. The mixture is allowed to stand for 16 hours at about 20°C, poured over ice, alkalized with a concentrated aqueous solution of  $NH_4OH$ , and the precipitate is isolated, giving 1.74 g of 3-indolyl acetamide, melting point 153°C (water), yield 50%. The following compounds of type I are synthesized by analogous methods (given are the compound, melting point, °C, and yield, %): 3-(3-indolyl)-propioamide, 134, 53; 3-(2-methyl-3-indolyl)-propioamide, 125-6, 99; 3-(2-methyl-5-chloro-3-indolyl)-propioamide, 145-6, 91.

1/1

- 42 -

USSR

UDC 621.317.4.001.14:669.018.5

CHERNYSHEVA, N. G.

"The Problem of Determining Magnetic Characteristics and Parameters of Alloys with High Magnetic Permeability"

Metrologiya, No 1, 1972, pp 63-72.

ABSTRACT: The magnetic characteristics currently used in acceptance testing of alloys with high magnetic permeability include the initial and maximum magnetic permeability, coercive force, saturation induction and rectangularity factor (for materials with rectangular hysteresis loops). However, these materials are primarily used under conditions of variable magnetization. Therefore, consumers are interested in the dynamic characteristics and parameters of the material, such as the dynamic magnetization curve and specific losses or loss angle, determined over a broad frequency range, as well as the dynamic loop parameters. After the required statistical material is accumulated, these dynamic characteristics should replace the acceptance testing characteristics currently used in newly developed norms. The author lists the main problems which must be solved in order to provide reliable quality testing of magnetically soft alloys with high magnetic permeability and produce the required handbook characteristics. These include: development of a new standard for alloys with high magnetic permeability; development of methodological norms for documents controlling the conditions of testing

1/2

USSR

UDC 621.317.4.001.14:669.018.5

CHERNYSHEVA, N. G., Metrologiya, No 1, 1972, pp 63-72.

of specimens; development of a methodological norms document, establishing the conditions of testing of thin wires; organization of production of the required apparatus and extension of norms documents, attestation of standard specimens over broad temperature and frequency intervals and preparation of handbook data to alloys with high magnetic permeability.

2/2

- 126 -



1/2 037 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EXCITATION OF BANDS OF THE FIRST NEGATIVE SYSTEM OF N SUB2 PRIME  
POSITIVE IN A HELIUM NITROGEN HIGH FREQUENCY DISCHARGE -U-  
AUTHOR--CHEKNYSHEVA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--OPT. SPEKTROSK. 1970, 28(3), 448-53  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--HIGH FREQUENCY DISCHARGE, EXCITED STATE, ELECTRON TEMPERATURE,  
HELIUM, GAS PRESSURE, NITROGEN, ELECTRON BOMBARDMENT, POSITIVE ION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1483 STEP NO--UR/0051/70/028/003/0448/0453  
CIRC ACCESSION NO--AP0118472  
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118472

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POPULATION OF VIBRATIONAL LEVELS, UPSILON PRIME EQUALS 0-7, OF N SUB2 PRIME POSITIVE (BETA PRIME2 EPSILON SUBU PRIME POSITIVE), ELECTRON TEMP., AND CONC., AND THE POPULATION OF THE EXCITED STATES OF HE HAVE BEEN MEASURED IN A HIGH FREQUENCY DISCHARGE OF HE CONTG. N IMPURITIES AT 0.5, 1.0 AND 3.3 TORR. THE EXCITATION OF THE BETA PRIME2 EPSILON SUBU PRIME POSITIVE TERM OF N SUB2 PRIME POSITIVE FROM THE GROUND STATE TERM CHI PRIME EPSILON SUBO PRIME POSITIVE, V PRIME PRIME EQUALS 0, OF N SUB2 BY ELECTRON BOMBARDMENT HAS BEEN STUDIED AND IT IS SHOWN THAT THE ENERGY TRANSFER FROM HE ATOMS TO N SUB2 CONSTITUTES THE FUNDAMENTAL PROCESS OF EXCITATION OF N SUB2 PRIME POSITIVE.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EXCITATION OF BANDS OF THE FIRST NEGATIVE SYSTEM OF N POSITIVE SUB2  
BY HE(2 PRIME1,3S, 2 PRIME 1,3P) ATOMS -U-  
AUTHOR-(02)-BOCHKOVA, O.P., CHERNYSHEVA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--OPT. SPEKTROSK. 1970, 28(1), 35-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--HELIUM, NITROGEN, HIGH FREQUENCY DISCHARGE, ENERGY BAND  
STRUCTURE, IONIZATION CROSS SECTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1980/1325 STEP NO--UR/0051/70/028/001/0035/0038  
CIRC ACCESSION NO--AP0049486  
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0049486

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SELECTIVE EXCITATION OF BANDS OF THE 1ST NEG. SYSTEM OF N MOL. ION BETA PRIME2 SIGMA PRIME POSITIVE SUBU,NU' CHI PRIME2 SIGMA G,NU" IN HIGH FREQUENCY NONELECTRONIC DISCHARGE OF HE-N MIXT. OCCURRED OWING TO IMPACTS OF 2ND ORDER N MOL. WITH THE ATOMS OF HE IN THE STATES 2 PRIME1,3 S, 2 PRIME1,3 P. THE ESTNS. OF THE EFFECTIVE CROSS SECTIONS FOR THE REACTIONS: HE(2 PRIME1,3S, 2 PRIME1,3P) PLUS N SUB2 (CHI PRIME1 SIGMA SUBG,NU"0) YIELDS N SUB2 PRIME POSITIVE (8 PRIME2 SIGMA U,NU") PLUS HE PLUS E WERE MADE. THEY EQUAL 10 PRIME NEGATIVE17 MINUS10 PRIME NEGATIVE16 CM PRIME2 FOR HE(2 PRIME1,3S), AND 10 PRIME NEGATIVE16 MINUS 10PRIME NEGATIVE 15 CM PRIME2 FOR HE(2 PRIME1,3RHO) FOR LEVELS WITH QUANTUM NO. NU' EQUALS 0-7. THE EXPTS. WERE CARRIED OUT IN A HIGH FREQUENCY DISCHARGE TUBE 10 MM DIAM. (6 MHZ) FILLED WITH HE-N MIXT. (N CONC. VARYING 0.0.

UNCLASSIFIED

USSR

UDC 621.910.71

KRYUKOVSKIY, V. V., PAPIVIN, V. N., and CHERNYSHEVA, S. P.

"On Chip Formation When Cutting Secondary Titanium Alloys"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 122-126

Translation: Results are given of an investigation of the effect of cutting conditions and the surrounding environment on contraction of chips in cutting secondary titanium alloy. The power dependencies are determined and the microstructures and microhardness of the chip are studied. It is shown that with an increase in the power of feeding and cutting, contraction of the alloy chip decreases, and the coefficient of contraction may take on a value less than one. The speed of cutting influences the formation of "negative" chip contraction more than feeding does. The surrounding environment in which the cutting takes place does not influence chip contraction. The force of cutting rises noticeably with an increase in the depth of feeding. Increasing the cutting speed leads to a certain reduction in it. Increasing the microhardness of the chip layer next to the cutting takes place primarily through work hardening. One illustration, three tables, and one bibliographic entry.

1/1

172 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--POLYADDITION REACTIONS OF SOME ORGANOVINYLOCHLOROSILICON HYDRIDES  
-U-  
AUTHOR--(05)--KOBRAKOV, K.I., FEDOROV, L.A., KUZMIN, O.V., NAMETKIN, N.S.,  
CHERNYSHEVA, I.I.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 18(3), 607-19 (CHEM)  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--POLYMERIZATION, ORGANOSILICON COMPOUND, OLIGOMER, CHLORINATED  
ORGANIC COMPOUND, DIMERIZATION, EPR SPECTRUM, CYCLOHEXANE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0725 STEP NO--UR/0020/70/191/003/0607/0610  
CIRC ACCESSION NO--AT0124395  
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. OF MESI(H:CH SUB2)CL, ETSI(H:CH SUB2)CL, PHSI(H:CH SUB2)CL, OR SI(H:CH SUB2) CL SUB2 IN SEALED TUBES AT 100-50DEGREES IN THE PRESENCE OF H SUB2 PTCL SUB6.6H SUB2 O AND PT-C GAVE OLIGOMERS CONTG. ONLY (CHME<sup>+</sup>IRCL) SUBN (I) (R SI CL OR PH) STRUCTURES OR I AND (CH SUB2 CH SUB2 SI<sup>+</sup>CL) SUBN (II) (R SI ME OR ET) STRUCTURES. BESIDES I AND (OR) II IN IS 9-11) THE POLYMN. ALSO GAVE DIMERS SUCH AS 1,4,DICHLORO,1,4,DIMETHYL,1,4,DISILACYCLOHEXANE (III) OR 1,1,4,4,TETRAMETHYL,1,4,DISILACYCLOHEXANE (V). EPR SPECTRA GAVE THE CONFORMATION OF III AND SHOWED THAT IV CONTAINS ISOMERIC 1,3,DICHLORO,1,2,3,TRIMETHYL,1,3,DISILACYCLOPENTANE. FACILITY: INST. NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

INSHUTINA, G. S., CHERNYSHEVA, T. M.

"The Problem of the Application of the  $\chi^2$  Criterion"

Stat. i Elektronno-Vychisl. Tekhn. v Ekon. [Statistics and Electronic Computer Equipment in Economics -- Collection of Works], No 5, Moscow, Statistika Press, 1972, pp 238-247 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V371, by V. Kolchin).

Translation: Results are presented from application of the  $\chi^2$  criterion to a number of specific economic and sociological problems to test homogeneity and compare methods of processing and planning of sample volumes.

1/1



CHERNYSHEVA V.I.

Acc. Nr.: AP0042579Ref. Code: UB 9067

JPRS 50162

Petrography and Chemical Composition of Lavas in Submarine Ridge

(Abstract: "Petrography and Chemical Composition of Spherulitic Lavas in the Central Indian Ocean Ridge," by V. I. Chernysheva, Institute of Oceanology; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, No 2, 1970, pp 20-26)

During 1964-1965 the Institute of Oceanology Academy of Sciences USSR carried out geological-geophysical investigations in the Indian Ocean (36th voyage of the "Vityaz'." While dredging in the Central Indian Ocean Ridge at a depth of 3,080 m specialists obtained fragments of basalts with thick glassy crusts which represent fragments of pillow and spherulitic lavas. A microscopic description of olivine basalts is given. The plagioclase in these samples is represented by labradorite bytownite. In chemical composition the spherulitic lavas are low-potassium tholeiitic basalts. The conclusion drawn by D. S. Korzhinskiy that the transvaporization of basaltic magma does not occur during underwater outpourings of lava is confirmed. During 1967, on the second voyage of the research vessel "Akademik Kurchatov" in the rift zone of the Indian Ocean-Arabian Sea Ridge, a dredge collected greenstone-modified basic extrusives: the plagioclase in these samples was represented by albite. These rocks differ sharply from the spherulitic

Reel/Frame

19760566

12

AP0042579 .

lavas in which traces of metamorphism are absent. It is concluded that there are two stages in basic volcanism separated by a prolonged stage of greenstone metamorphism and possible tectonic movements.

19760567

CHERNYSHEVICH, I. V.

RND / 18.10.05-AN-128  
12.05.73

The value of  $\alpha$  is definitely affected by the gas physical properties. Experimental results show that the greater the  $H_2$  content the higher is the  $\alpha$ , particularly with regard to the process of methane vapor conversion  $\alpha$  rises with increased temperature. With a mean temperature rise in the layer from 300 to 900° C, the absolute value of  $\alpha$  increases by a factor of 2.4-2.7. The relationship of the rise of  $\alpha$  with increased pressure is valid at each temperature layer. At temperatures above 300° C, the increase of the difference between the apparatus surface temperature and the mean layer temperature becomes more pronounced. Data obtained during investigation of the surface heat transfer to a fluidized layer, with nitrogen as the carrier gas, were generalized by the relationship  $Nu = f(Re)$ . An equation for calculation of the total (convective and radiative) heat transfer coefficient was derived on the basis of the experimental data:

$$Nu = 42.17 Re^{0.9} T_{\text{layer}} / 250,$$

where  $T_{\text{layer}}$  is the mean temperature of the fluidized layer; 250° C is the lowest value of  $T_{\text{layer}}$  adopted in the calculation of  $\alpha$ .

Chernyshevich, I. V., and I. P. Zhuk.  
Three-dimensional problems of non-stationary thermal conductivity of solids under thermal destruction. IAN B, no. 2, 1973, no. 1.

A solution is presented to a boundary-value problem for heat conduction in solids with boundaries moving in accordance with an arbitrary law. The problem arises in surface breakdown by intense heat flux and gas ablation, and is related to the protection of structures and

USSR

UDC

LIMAREV, A. Ye., CHERNYSHOV, A. D., Voronezh

"The Propagation of Elastic Waves in an Elastic-Plastic Medium with Hardening"

Prikladnaya Matematika i Mekhanika, Vol 35, No 6, 1971, pp 1,085-1,088.

ABSTRACT: A study is made of the problem of propagation of elastic waves in an elastic-plastic medium with translational hardening. Difficulties in production of a closed system of equations require combined solution of the problems of propagation and the structure of shockwaves. In the problem of the structure of a wave, the changes in rupture quantities within the transition layer are described by a system of ordinary differential equations. Precise solution of the combined problems of propagation and structure is difficult; therefore, it is suggested for simplification that a linear dependence be assumed between the "rupture" functions within the transition layer. This method is used to produce a closed system of equations for an elastic-plastic medium and to investigate the properties of shockwaves.

1/1

- 83 -